

Second Midterm

Name: _____

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MCB135E - Physiology of Human Development
Friday, November 8, 1996

I. (30 points) Multiple choice questions: *only one choice is correct.*

1. Oxytocin is a hormone:
 - a. secreted by the neuroendocrine cells of the hypothalamus.
 - b. that stimulates the contractions of the uterine muscles at parturition.
 - c. that stimulates muscle contraction to eject milk from the mammary gland.
 - d. estrogens increase the number of its receptors.
 - e. All of the above.
2. Respiratory distress syndrome is due to:
 - a. late reabsorption of water from the neonatal lung.
 - b. toxic effects of oxygen administered to the newborn.
 - c. insufficient amounts of surfactant.
 - d. delayed closure of the foramen ovale.
 - e. premature closure of the ductus arteriosus.
3. To compensate for heat loss, the newborn has a special tissue, the brown fat tissue.
 - a. This is a special type of adipose tissue.
 - b. Its main function is to uncouple mitochondrial oxidative phosphorylation.
 - c. Its main function is to increase heat production.
 - d. Its main function is to increase O₂ consumption.
 - e. All of the above.
4. At birth, cardiovascular adjustments include:
 - a. increased pressure of the right heart above that of the left heart.
 - b. increased pressure of the left heart above that of the right heart.
 - c. constriction of the pulmonary arterioles and capillaries.
 - d. All of the above.
 - e. None of the above.
5. Some of the major problems of prematurity include:
 - a. intraventricular hemorrhage (stroke).
 - b. retinopathy.
 - c. patent ductus arteriosus.
 - d. anemia of prematurity.
 - e. All of the above.
6. Of the many functions of the liver, indicate which is not present at birth:
 - a. bile formation
 - b. urea formation
 - c. detoxification of drugs and toxins
 - d. glycogen storage
 - e. manufacture of plasma proteins
7. Prolongation of lactation may act as contraceptive because:
 - a. low levels of prolactin inhibit FSH and LH secretion.
 - b. high levels of prolactin inhibit FSH and LH secretion.
 - c. concomitant high levels of prolactin and cortisol inhibit FSH and LH secretion.
 - d. All of the above.
 - e. None of the above.

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8. The major growth-promoting hormones that are not regulating growth during infancy and childhood are:
- growth hormone
 - thyroid hormone
 - insulinlike growth factor I
 - androgens
 - growth hormone-releasing hormone
9. In the newborn, the rapid heart rate (100 bpm or higher), is due to:
- the need to compensate for a lower (than in the adult) cardiac stroke volume.
 - decreased pulmonary circulation.
 - the need to compensate for a higher (than in the adult) cardiac stroke volume.
 - the closure of the ductus venosus.
 - None of the above.
10. The most frequent neonatal malformation in humans is:
- phocomelia
 - spina bifida
 - cleft palate
 - anencephalia (no brain)
 - kwashiorkor

II. (8 points) Explain the inability of renal function to concentrate urine under increasing demand at early as compared to adult ages.

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III. (20 points) The APGAR scoring system is utilized immediately at birth to test the physical condition of the newborn. Fill in the function tested and the respective criteria for scoring in the appropriate places in the chart provided below. Also indicate the minimum score compatible with survival and the score in 90% of normal infants.

	Function Tested	0	1	2
1.				
2.				
3.				
4.				
5.				

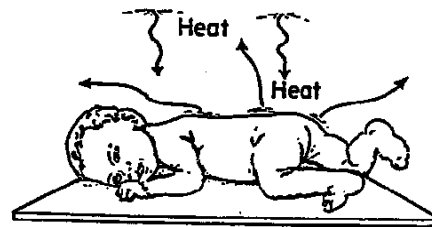
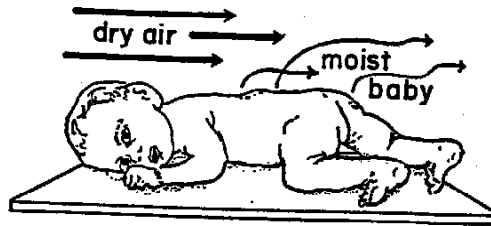
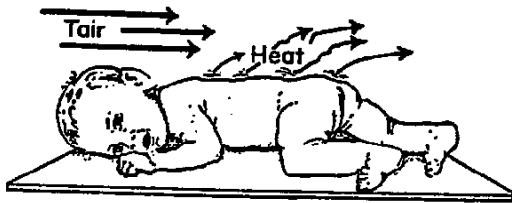
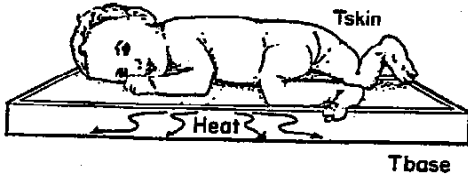
Minimum score compatible with survival:
Score in 90% of normal infants:

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IV. (10 points) One of the most serious problems to control thermal regulation in the newborn and infant is the great heat loss due to the large body surface relative to body size. Illustrated below are four different mechanisms by which heat is lost. Name the mechanism of heat loss demonstrated in each of the four illustrations.



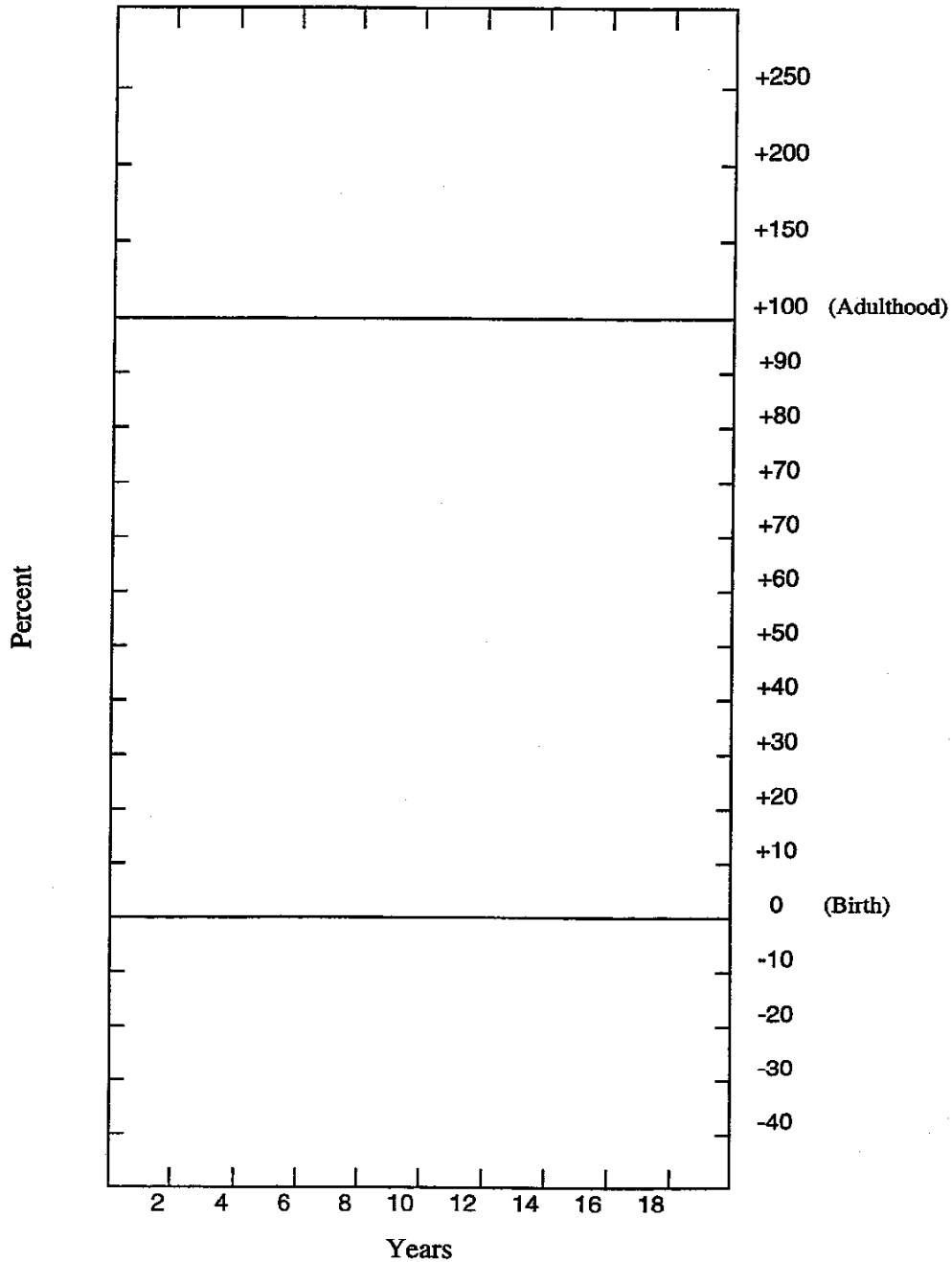
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V. (20 points) Fill in the graph with the postnatal growth curves of the following organs: uterus, brain, thymus, body weight/splachnic organs weight, and adrenals.

Postnatal Developmental Period



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VI. (12 points) Explain the following terms and discuss function(s) and mechanism(s) of actions:

Growth Hormone

Dehydroepiandrosterone

Dwarfism

Secular trend in stature